

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing

(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION

See paragraph 2 below

International application No.
PCT/EP2005/000487

International filing date (day/month/year)
19.01.2005

Priority date (day/month/year)
24.01.2004

International Patent Classification (IPC) or both national classification and IPC
G03G15/20, G03G15/00

Applicant
EASTMAN KODAK COMPANY

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2005/000487

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.
PCT/EP2005/000487

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1-3,5-8
Inventive step (IS)	Yes: Claims	
	No: Claims	1-10
Industrial applicability (IA)	Yes: Claims	1-10
	No: Claims	

2. Citations and explanations

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2005/000487

Re Item V : Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

- 1.1 The application relates to ADJUSTING A FUSING DEVICE OF A DIGITAL PRINTING MACHINE BY DETERMINING THE HUMIDITY OF PRINTING MATERIAL AND MEASURING THE REFLECTANCE OF MICROWAVE SIGNALS AT A PRINT MATERIAL.
 - 1.2 The wording of independent claims 1 and 7 essentially specifies only the detection of reflectance of a print material dependent on microwave frequency. Though supported by the curves in Fig.2 showing the ratio of reflected to incident signals, the subject-matter of the claims is not limited thereto.
 - 1.3 Following pp.2 f as filed, this subject-matter shall solve the following *PROBLEMS, namely to determine the humidity of printing material so that microwave fusing may be optimized with respect to blistering or overheating, or else to check the type of printing material so that wrong copying material may be sorted out. The wording of the independent claims, however, is not limited correspondingly.
2. With reference to the indications given in the International search report (ISR) the documents are cited for the following reasons:
- US20020088799 (nexpress solutions) shows a fixing device with microwave resonators of, eg, 2,45 GHz, and arranged so that the standing waves therein are offset from each other by a wavelength fraction, to heat the copy sheet uniformly, plus with an efficiency control based on measured parameters such as the temperature of a copy sheet after fixing or weight and humidity of the copy substrate.
 - US4542980 (canon) shows a fixing device with a dielectric as microwave waveguide between an upper flat conductor plate and a lower heat pipe and thermally coupled to heating fins, to support preheating of the copy sheets, yet, without overheating.
 - EP1211504 (neocera) shows a measuring device for detecting a change between the microwave signals directed at a probe and reflected by the probe, to determine properties of the probe material.
 - US20020122681 (nexpress solutions) shows copy material with toner layers of different colours and fused one after the other by visible light of selected

wavelengths, to limit heating of the image carrier substrate and to avoid blistering from moisture in both material and toner.

US4511778 (canon) shows fixing devices with special microwave waveguides, to balance a leakage of fusing energy across the size of a copy material.

US20020136574 (nexpress solutions) shows lamps of a non-contact fixing device emitting two or more UV pulses with some delay, plus a bolometer to measure the total energy reflected onto the toner layers of a copy, to have uniform fusing by extending the energy value which limits overheating.

3. The broad wording of the independent claims 1, 7 supplies the claims with a broad interpretation: in claim 1, eg, the feature "that a change between the microwave signals reflected by the printing material (5) and the emitted microwave signals is detected", is shown as temperature distribution in a fused toner image, see Fig.5 of US20020088799, or visualized as fixed toner image without leaving any portion thereof unfixed, refer to columns 5 ff of US4542980. Similar reasons based on result namely a fairly molten toner image, apply to claim 7 and the feature "configured so as to detect a change between the microwave signal reflected by a printing material (5) and a microwave signal directed at the printing material (5)". Moreover, it is considered standard use to apply a measuring device such as the one known from EP1211504 to all kinds of a probe, including printing material, in particular, since neither the measuring device nor the printing material as claimed is further determined.
4. All cited documents relate to the problems to be solved and provide for standard features in the prior art.
5. Hence, the subject-matter as claimed does not appear to involve an inventive step.